

## **REMARKS**

### **I. The Information Disclosure Statement Filed DS Reference DE 19926117**

The Examiner states that DE 19926117 was crossed off the PTO Form SB/08 in the IDS filed December 12, 2005 because no concise explanation of relevance or translation was submitted.

The International Search Report listing DE 19926117 was submitted with the IDS. See also the USPTO Form PCT/DO/EO/903 "Notice of Acceptance of Application under 35 U.S.C. § 371 and 37 C.F.R. § 1.495" which clearly indicates receipt of the International Search Report by the USPTO. The International Search Report constitutes a concise statement of relevance. See MPEP 609.04(a).III.

In view of the above, the Examiner is requested to consider the DE 19926117 reference cited.

### **II. The Rejection Under 35 U.S.C. § 112**

Claims 4, 5 and 7-13 are rejected under 35 U.S.C. 112, second paragraph, as allegedly being indefinite.

The Examiner states that claims 4, 5 and 7-13 are indefinite because they depend on withdrawn claims.

Claims 4, 5 and 7-13 being dependent on withdrawn claims in no way makes them indefinite. They may contain non-elected subject matter, but they are not indefinite. However, if Examiner indicates allowable subject matter for the elected invention, the Examiner is requested to contact the Applicants' representative and Applicants will consider amending the

dependencies of claims 4, 5 and 8-13 at that time.

The Examiner also states that claim 7 is also indefinite because the limitation “the compound having the triazole skeleton having no amino group” lacks antecedent basis in claim 1.

Claim 7 has been amended to depend on claim 1 alone and to clarify the antecedent basis. It is noted the claim 7 is a linking claim.

For the above reasons, it is respectfully submitted that Applicants’ claims are clear and definite and it is requested that the rejection under 35 U.S.C. §112 be reconsidered and withdrawn.

### **III. The Objection to Claim 13**

Claim 13 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim.

Claim 13 has been amended for clarity to recite that the slurry has the claimed capability. It is respectfully submitted that such functional language is definite. It is respectfully submitted that Applicants’ claims are clear and definite and it is requested that the objection to claim 13 be reconsidered and withdrawn.

### **IV. The Rejection Based on Uchida et al. in view of Sameshima et al.**

Claims 1, 4, 5 and 7-13 are rejected under 35 U.S.C. 103(a) as allegedly being obvious over Uchida et al ‘630 in view of Sameshima et al ‘624.

Applicants respectfully submit that the present invention is not rendered obvious over the disclosures of Uchida et al ‘630 in view of Sameshima et al ‘624 and request that the Examiner reconsider and withdraw this rejection in view of the following remarks.

A feature of the present application is to make the polishing speed of a hard barrier layer such as tungsten sufficiently high, while etching speed of wiring metal such as copper is kept low, which the specific metal inhibitor or a combination of the specific metal inhibitors in the polishing slurry can achieve. (Please see page 4, lines 7-25 in Applicants' specification).

Uchida et al '630 discloses a polishing liquid for Cu wiring without a suggestion or a description for making the polishing speed of a barrier metal layer high. Though Uchida et al '630 refers to 3-amino-1H-1,2,4-triazole as one of the first metal inhibitor, 92 other kinds of the compounds are also referenced. Applicants respectfully submit that there is no reason or motivation in Uchida et al '630 to select an amino-triazole compound(s) such as 3-amino-1H-1,2,4-triazole from said large number of compounds. Furthermore, there is no description that such amino-triazole compound is capable of enabling the polishing speed of a barrier layer high.

Although Sameshima et al '624 discloses an oxidizer and a metal oxide dissolving agent, Sameshima et al '624 has no description about an amino-triazole compound or that the amino-triazole compound makes the polishing speed of a barrier layer high.

Although Sameshima et al '624 has a description about an effect by a combination of imidazole compound and BTA, there is no description about an effect by a combination of imidazole compound and the amino-triazole compound. Furthermore, there is no description in Sameshima et al '624 of 2-methylimidazole, 2-ethylimidazole, 2-(isopropyl)imidazole, 2-propylimidazole, 2-butylimidazole, 2,4-dimethylimidazole, and 2-ethyl-4-methylimidazole that are the preferable imidazoles in the present application. See Applicants' claim 5.

Thus, even if the disclosures of Uchida et al '630 are combined with Sameshima et al

'624 Applicants invention would not have been obtained. Applicants' invention shows unexpected superiority over the cited art for a polishing slurry that allows the polishing speed of a barrier layer such as tungsten to be high, while etching speed of wiring metal such as Cu is kept low.

For the above reasons, it is respectfully submitted that the subject matter of claims 1, 4, 5 and 7-13 is neither taught by nor made obvious from the disclosures of Uchida et al '630 and Sameshima et al '624 and it is requested that the rejection under 35 U.S.C. §103(a) be reconsidered and withdrawn.

**V. The Rejection Based on EP 1260607**

Claims 1, 7-11 and 13 are rejected under 35 U.S.C. 102(a) as allegedly being anticipated by EP 1260607.

Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as allegedly being obvious EP 1260607 in view of Uchida et al '630 and/or Sameshima et al '624.

Applicants respectfully submit that the present invention is not anticipated by or obvious over the disclosures of EP 1260607, alone or in view of Uchida et al '630 and/or Sameshima et al '624, and request that the Examiner reconsider and withdraw these rejections in view of the following remarks.

EP 1260607 discloses amino-triazole as an example of azole-compounds contained in micro-etching liquid, preprocessing liquid, or plating liquid. But the amino-triazole is only part of the very large number of azole-compounds referred in EP 1260607, and amino-triazole is not used in any example. Therefore, it is respectfully submitted that the present invention is not

anticipated by EP 1260607. EP 1260607 has no reason to select amino-triazole and no suggestion that Applicants' unexpected effect would have been achieved by the selection.

As the effect by blending azole-compounds, EP 1260607 discloses only the effects to improve the adhesion of Ag and Cu while plating, and to decrease unevenness of thickness of Ag plating. But the azole-compounds in EP 1260607 have no suggestion of the common effect or function as a metal inhibitor. Thus, EP 1260607 has no reason or motivation to be combined to a polishing slurry for CMP, nor to be combined with Uchida et al '630 and/or Sameshima et al '624. Furthermore, it is not obvious to obtain the effect as achieved by Applicants' combination. Applicants' invention shows unexpected superiority over the cited art for a polishing slurry that allows the polishing speed of a barrier layer such as tungsten to be high, while etching speed of wiring metal such as Cu is kept low.

For the above reasons, it is respectfully submitted that the subject matter of claims 1, 4, 5, 7-11 and 13 is neither taught by nor made obvious from the disclosures of EP 1260607, alone or in view of Uchida et al '630 and Sameshima et al '624, and it is requested that the rejections under 35 U.S.C. §§102 and 103 be reconsidered and withdrawn.

**VI. The Rejection Based on Kurata et al '609**

Claims 1, 4, 5 and 7-13 are rejected under 35 U.S.C. 102(e) as allegedly being anticipated by Kurata et al '609.

Kurata et al '609 is not based on a PCT application that was published in English. Therefore, Kurata et al '609 simply does not have a 102(e) date and is not available as prior art under 35 U.S.C. § 102(e).

The publication date of the PCT/JP2003/05465 related to Kurata et al '609 is November 13, 2003. This is also after the filing date of the PCT application of the present national stage application.

Further, Kurata et al '609 discloses a polishing slurry containing "one or more types selected from the group (C-group) consisting of aromatic compounds having a triazole skeleton" and "one or more types selected from the group (D-group) consisting of aliphatic compounds having a triazole skeleton, compounds having a pyrimidine skeleton, compounds having an imidazole skeleton, compounds having a guanidine skeleton, compounds having a thiazole skeleton and compounds having a pyrazole skeleton" as metal inhibitor.

On the other hand, the present application is characterized by the combination of amino-triazole compound and imidazole compound. The both of the compounds of the present invention compounds do not belong C-group, but the D-group in Kurata et al '609. And the amino-triazole compound and imidazole compound in Kurata et al '609 are described in parallel in D-group with other many compounds. There is no reason or motivation to adopt the two kinds of compounds selectively from D-group, and the effect by the combination of the two kinds of compounds is not obvious.

For the above reasons, it is respectfully submitted that the subject matter of claims 1, 4, 5 and 7-13 is neither taught by nor made obvious from the disclosures of Kurata et al '609 and it is requested that the rejection under 35 U.S.C. §102.

**VII. The Rejection Based on Kurata et al '609**

Claims 1, 4, 5 and 7-13 are rejected under 35 U.S.C. 102(e) as allegedly being anticipated

by Kurata et al '669.

Applicants respectfully submit that the present invention is not anticipated by or obvious over the disclosures of Kurata et al '669 and request that the Examiner reconsider and withdraw this rejection in view of the following remarks.

Kurata et al '669 discloses amino-triazole compound and imidazole compound as members of the enumerated metal inhibitors in Kurata et al '669.

But Kurata et al '669 describes in page 15 "There are no particular limitations as long as the metal anticorrosive agent (\* = metal inhibitor) of the invention forms the protective film on the oxidized layer of the surface of the metal film, and prevents the oxidized layer from solving in the polishing slurry." And Kurata et al '669 discloses many kinds of metal inhibitor such as "a compound having a triazole skeleton other than benzotriazole, a compound having a pyrimidine skeleton, a compound having an imidazole skeleton, a compound having a guanidine skeleton, a compound having a thiazole skeleton, a compound having a pyrazole skeleton and benzotriazole" in Claim 5. There is no reason or motivation to make and use the claimed combination of amino-triazole compound and imidazole compound selectively from the disclosures of Kurata et al '669.

Furthermore, Examples of Kurata et al '669 that use only BTA don't suggest the combination of two or more metal inhibitors, or the unexpected results of the increase of the polishing speed of a barrier layer achievable by the combination thereof.

For the above reasons, it is respectfully submitted that the subject matter of claims 1, 4, 5 and 7-13 is neither taught by nor made obvious from the disclosures of Kurata et al '669 and it is requested that the rejection under 35 U.S.C. §102 be reconsidered and withdrawn.

**VIII. The Double Patenting Rejection Based on Copending Application No. 10/517,049**

Claims 1, 4, 5 and 7-13 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as allegedly being unpatentable over claims 1-11 of copending Application No. 10/517,049.

The Examiner states that the claims of the copending application define all of the claimed limitation with the exception of the specific inhibitor compounds used. The Examiner notes claim 5 and the Examiner also states that "one can look to the specification as a definition of what inhibitors are included in these groups."

The Examiner's use of the disclosures of Applicants' specification is improper in an obviousness type double patenting rejection.

The issue is whether from the teachings Applicants' claimed invention would have been obvious to one skilled in the art in view of the prior art, not in view of Applicants' disclosure.

For the above reasons, it is respectfully submitted that the obviousness-type double patenting rejection is improper and it is requested that the obviousness-type double patenting rejection be reconsidered and withdrawn.

It is also noted that the instant rejection is a provisional rejection. See MPEP 804, Section I.B.

**IX. The Double Patenting Rejection Based on Copending Application No. 10/513,002**

Claims 1, 4, 5 and 7-13 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as allegedly being unpatentable over claims 1-15 of copending Application No. 10/513,002.



The Examiner states that the claims of the copending application define all of the claimed limitation with the exception of the specific inhibitor compounds used. The Examiner notes claim 5 and the Examiner also states that “one can look to the specification as a definition of what inhibitors are included in these groups.”

The Examiner’s use of the disclosures of Applicants’ specification is improper in an obviousness type double patenting rejection.

The issue is whether from the teachings Applicants’ claimed invention would have been obvious to one skilled in the art in view of the prior art, not in view of Applicants’ disclosure.

For the above reasons, it is respectfully submitted that the obviousness-type double patenting rejection is improper and it is requested that the obviousness-type double patenting rejection be reconsidered and withdrawn.

It is also noted that the instant rejection is a provisional rejection. See MPEP 804, Section I.B.

**X. Conclusion**

In view of the above, Applicants respectfully submit that their claimed invention is allowable and ask that the objection to the claims, the rejection under 35 U.S.C. §112, the rejections under 35 U.S.C. §102, and the rejections under 35 U.S.C. §103 be reconsidered and withdrawn. Applicants respectfully submit that this case is in condition for allowance and allowance is respectfully solicited.

Application No.: 10/560,228  
Art Unit: 1793

Amendment Under 37 C.F.R. §1.111  
Attorney Docket No.: 053460

If any points remain at issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the local exchange number listed below.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,  
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